

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group
Art Unit: Unknown

Attorney
Docket No.: SHC0163

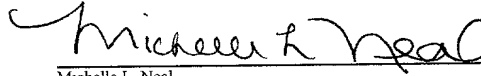
Applicant: Yoshitaka Mishima et al.

Invention: DISPOSABLE UNDERGARMENT

Serial No: Unknown

Filed: Herewith

Examiner: Unknown

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} Certificate Under 37 C.F.R. 1.10
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}
} DATE OF DEPOSIT DECEMBER 10, 2001
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PRELIMINARY AMENDMENT

Box: Patent Application
Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Prior to the examination of the above-identified application, please amend the application as follows:

IN THE SPECIFICATION

Please replace the last paragraph beginning on page 13 and continuing on page 14 with the following:

- -In the diaper 1A, the bulging line 7e extending on the skin-facing sheet 7 in the longitudinal direction is received in the cleft of the wearer's buttock as the diaper 1A is worn. In this way, the bulging line 7e limits movement of the skin-facing sheet 7 in the transverse direction and thereby prevents the skin-facing sheet 7 from moving sideways.- -

Please replace the last paragraph beginning on page 18 and continuing on page 19 with the following:

- -The skin-facing sheet 5 and the leak-barrier sheets 15 may be formed from an elastically stretchable hydrophobic fibrous nonwoven fabric obtained by melt blown or spun bond process. Components of such elastic stretchable nonwoven fabric may be stretchable fibers obtained by melting and spinning thermoplastic elastomer resin. The elastically stretchable fibrous nonwoven fabric may be a composite nonwoven fabric consisting of a hydrophobic fibrous nonwoven fabric made of thermoplastic elastomer resin fibers and a hydrophobic fibrous nonwoven fabric comprising crimped fibers which are obtained by melting and spinning thermoplastic synthetic resin such as polypropylene, polyethylene or polyester bonded to at least one surface of the hydrophobic fibrous nonwoven fabric.- -

Please replace the last paragraph on page 20 and continuing on page 21 with the following:

- -In the diaper 1B of Fig. 6, it is also possible to form the leak-barrier sheets 15 from an inelastic hydrophobic fibrous nonwoven fabric. In this case, the fixed top regions of the leak-barrier sheets 15 may be joined to the surface of the skin-facing sheet 7 under extension in the longitudinal direction with its surface opposed to the leak-barrier sheets 15 and then the skin-facing sheet 7 may be attached under extension in the longitudinal direction to the skin-facing side 2 of the diaper 1B.- -

IN THE CLAIMS

Please amend Claim 1 as follows:

1. (Amended) A disposable undergarment having longitudinally opposite end regions and transversely opposite side regions and comprising:
a liquid-impervious base sheet defining a non-skin-facing side;

a liquid-absorbent panel placed upon said base sheet and defining a skin-facing side opposed to said non-skin-facing side; and

an elastically stretchable and substantially liquid-impervious skin-facing sheet attached to said skin-facing side so as to cover said panel,

said skin-facing sheet having:

fixed regions lying on said longitudinally opposite end regions and joined to said skin-facing side;

a longitudinally middle region extending between said fixed regions and normally biased to be spaced apart upward from said panel as said undergarment is curved in a longitudinal direction thereof with the skin-facing side inside; and

a pair of transversely opposite side regions curving transversely inward on both sides of said longitudinally middle region so as to define a pair of leg-holes and at least one opening formed in said longitudinally middle region,

a basis weight of said skin-facing sheet being higher in said transversely opposite side regions defining the leg-holes than a basis weight of a remaining region of said skin-facing sheet and a tensile stress of said skin-facing sheet is higher than a tensile stress of said transversely opposite side regions defining the leg-holes than in the remaining region.

Please amend Claim 2 as follows:

2. (Amended) The disposable undergarment according to Claim 1, wherein a basis weight of said skin-facing sheet is higher in a peripheral edge region of said at least one opening than a basis weight of the remaining region and a tensile stress of said skin-facing sheet is higher in said peripheral edge region of said at least one opening than a basis weight of the remaining region.

Please amend Claim 3 as follows:

3. (Amended) The disposable undergarment according to Claim 1, wherein a bulging line extends on said skin-facing sheet in said longitudinal direction in a vicinity of a longitudinal center line of said skin-facing sheet and wherein said bulging line is formed by folding and overlapping a part of said skin-facing sheet and joining said part together.

Please amend Claim 4 as follows:

4. (Amended) The disposable undergarment according to Claim 3, wherein said skin-facing sheet is folded back at least once along said transversely opposite side regions defining the leg-holes and said peripheral edge region of said at least one opening so as to increase the basis weight and the tensile stress of said skin-facing sheet in said transversely opposite side regions and in said peripheral edge region of said at least one opening.

Please amend Claim 6 as follows:

6. (Amended) The disposable undergarment according to Claim 5, wherein said leak-barrier sheets are elastically stretchable and wherein said skin-facing sheet and said leak-barrier sheets are attached under tension in said longitudinal direction to said skin-facing side of said undergarment.

Please amend Claim 7 as follows:

7. (Amended) The disposable undergarment according to Claim 1, wherein said transversely opposite side regions of said skin-facing sheet defining the leg-holes lie inwardly of said transversely opposite side regions of said base sheet.

IN THE ABSTRACT

Please amend the Abstract as follows:

- -A disposable undergarment that includes an absorbent panel and a stretchable skin-facing sheet positioned on a skin-facing side of the panel. The skin-facing sheet has fixed regions lying on longitudinally opposite end regions of the undergarment, a middle region normally biased to be spaced apart upward from the panel, transversely opposite side edge regions transversely inward to define leg-holes and an opening formed in the middle region in a manner that a basis weight of the skin-facing sheet is higher in the transversely opposite side edge regions than in the remaining region and a tensile stress of the skin-facing sheet is higher in the transversely opposite side edge regions than in the remaining region.- -

• • • R E M A R K S • • •

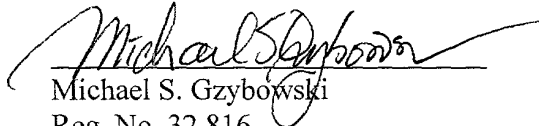
By the present Preliminary Amendment, the specification, claims and abstract have been revised to more clearly describe applicants' invention in accordance with the requirements of 35 U.S.C. § 112.

Care has been taken so as to avoid the addition of new matter in the specification, claims and abstract.

Entry of the present Preliminary Amendment prior to the examination of the application is respectfully requested.

In the event applicants have overlooked the need for an extension of time, an additional extension of time, payment of fee, or additional payment of fee, applicants hereby petition therefor and authorize that any charges be made to Deposit Account No. 02-0385, Baker & Daniels.

Respectfully submitted,


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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Changes Made to Specification Paragraphs

The last paragraph beginning on page 13 and continuing on page 14 has been amended as follows:

In the diaper 1A, the bulging line 7e extending on the skin-facing sheet 7 in the longitudinal direction is received in the cleft of the wearer's [hip] buttock as the diaper 1A is worn. In this way, the bulging line 7e limits movement of the skin-facing sheet 7 in the transverse direction and thereby prevents the skin-facing sheet 7 from moving sideways.

The last paragraph beginning on page 18 and continuing on page 19 has been amended as follows:

The skin-facing sheet 5 and the leak-barrier sheets 15 may be formed [by using] from an elastically stretchable hydrophobic fibrous nonwoven fabric obtained by melt blown or spun bond process. Components of such elastic stretchable nonwoven fabric may be stretchable fibers obtained by melting and spinning thermoplastic elastomer resin. The elastically stretchable fibrous nonwoven fabric may be a composite nonwoven fabric consisting of a hydrophobic fibrous nonwoven fabric made of thermoplastic elastomer resin fibers and a hydrophobic fibrous nonwoven fabric comprising crimped fibers which are obtained by melting and spinning thermoplastic synthetic resin such as polypropylene, polyethylene or polyester bonded to at least one surface of the hydrophobic fibrous nonwoven fabric.

The last paragraph on page 20 and continuing on page 21 has been amended as follows:

In the diaper 1B of Fig. 6, it is also possible to form the leak-barrier sheets 15 [using] from an inelastic hydrophobic fibrous nonwoven fabric. In this case, the fixed top regions of the leak-barrier sheets 15 may be joined to the surface of the skin-facing sheet 7 under extension in

the longitudinal direction with its surface opposed to the leak-barrier sheets 15 and then the skin-facing sheet 7 may be attached under extension in the longitudinal direction to the skin-facing side 2 of the diaper 1B.

Changes Made to Claims

Claim 1 has been amended as follows:

1. (Amended) A disposable undergarment having longitudinally opposite end regions and transversely opposite side [regions,] regions and comprising:

a liquid-impervious base sheet defining a non-skin-facing side; [and]

a liquid-absorbent panel placed upon said base sheet and defining a skin-facing side opposed to said non-skin-facing side; and [said undergarment further comprising]

an elastically stretchable and substantially liquid-impervious skin-facing sheet [being] attached to said skin-facing side so as to cover said panel,

said skin-facing sheet having:

fixed regions lying on said longitudinally opposite end regions and joined to said skin-facing [side,] side;

a longitudinally middle region extending between said fixed regions and normally biased to be spaced apart upward from said panel as said undergarment is curved in a longitudinal direction thereof with the skin-facing side [inside,] inside; and

a pair of transversely opposite side regions curving transversely inward on both sides of said longitudinally middle region so as to define a pair of leg-holes and at least one opening formed in said longitudinally middle [region; and] region.

a basis weight of said skin-facing sheet being higher in said transversely opposite side regions [for] defining the leg-holes than a basis weight of [in] a remaining region of said skin-

facing sheet and a tensile stress of said skin-facing sheet is higher that a tensile stress of [in] said transversely opposite side regions [for] defining the leg-holes than in the remaining region.

Claim 2 has been amended as follows:

2. (Amended) The disposable undergarment according to Claim 1, wherein a basis weight of said skin-facing sheet is higher in a peripheral edge region of said at least one opening than a basis weight of the remaining region and a tensile stress of said skin-facing sheet is higher in said peripheral edge region of said at least one opening than a basis weight of [in] the remaining region.

Claim 3 has been amended as follows:

3. (Amended) The disposable undergarment according to Claim 1, wherein a bulging line extends on said skin-facing sheet in said longitudinal direction in a vicinity of a longitudinal center line of said skin-facing sheet and wherein said bulging line is formed by folding [overlappingly] and overlapping a part of [the surface of] said skin-facing sheet [opposed to said skin-facing side] and joining said part together.

Claim 4 has been amended as follows:

4. (Amended) The disposable undergarment according to Claim 3, wherein said skin-facing sheet is folded back at least once along said transversely opposite side regions [for] defining the leg-holes and said peripheral edge region of said at least one opening so as to increase the basis weight and the tensile stress of said skin-facing sheet in said transversely opposite side regions and in said peripheral edge region of said at least one opening.

Claim 5 remains unchanged.

Claim 6 has been amended as follows:

6. (Amended) The disposable undergarment according to Claim 5, wherein said leak-barrier sheets are elastically stretchable and wherein said skin-facing sheet and said leak-barrier sheets are attached under [extension] tension in said longitudinal direction to said skin-facing side of said undergarment.

Claim 7 has been amended as follows:

7. (Amended) The disposable undergarment according to Claim 1, wherein said transversely opposite side regions of said skin-facing sheet [for] defining the leg-holes lie [inside] inwardly of said transversely opposite side regions of said base sheet.

Changes in the Abstract

The Abstract has been amended as follows:

A disposable undergarment that includes an absorbent panel and a stretchable skin-facing sheet positioned on a skin-facing side of the panel. The skin-facing sheet has fixed regions lying on longitudinally opposite end regions of the undergarment, a middle region normally biased to be spaced apart upward from the panel, transversely opposite side edge regions transversely inward to define leg-holes and an opening formed in the middle region in a manner that a basis weight of the skin-facing sheet is higher in the transversely opposite side edge regions than in the remaining region and a tensile stress of the skin-facing sheet is higher in the transversely opposite side edge regions than in the remaining region.